Technical Attachment

NWS Weather Event Simulator
National and Southern Region Plans for the Coming Year

Scientific Services Division
NWS Southern Region

The following is a summary of WES activities underway and planned by the Warning Decision Training Branch (Ed Mahoney, Chief of WDTB), the SOO Science and Training Resource Coordinator (Bob Rozumalski, WSH/OCWWS), and SSD (Bernard Meisner).

Warning Decision Training Branch

The WDTB has been and will continue to work to enhance WES capabilities for the NWS field offices. The listed requirement numbers below identify the appropriate tasking paragraph from the FY2003 Implementation Plan for NWS Training and Education.

1. WES 1.1 (Requirement: III.A.2.1)

The WES 1.1 includes Build 5.2.2.2 of AWIPS, instructions for customizing WES from a local AWIPS, and patches for software problems with WES 1.0. The new version of the WES will allow forecasters to use a more relevant version of AWIPS to develop training (including the new high resolution 8-bit radar data), and it will provide instructions on how to better "train like you fight" using local AWIPS customizations. The customization instructions will provide offices with a way to incorporate local AWIPS customizations into WES data cases from other CWAs. A WES 1.2 upgrade to AWIPS version Operational Build 1 is also planned for release very soon after WES 1.1 is released. Delivery: March-April FY03.

2. Winter Weather Simulation Guide (Requirement: III.A.1.1)

This simulation guide will provide training focal points who attended the Winter Weather WDM Workshops with the event used during the labs. The guide will contain up to six simulations associated with this event. As this event took place over three days and impacted nine County Warning Areas, the data set is huge and will require the case to be distributed on DVD(s).
Delivery: Following the last WDTB Winter Weather Workshop: August FY03.

3. Severe Weather/Flash Flood Simulation Guide (Requirement: III.A.1.2)

This simulation guide will provide the training focal points who attended Severe Weather/Flash Flood WDM Workshops with the events used during the labs. The guide will contain up to four simulations, and will be produced only if WDTB is provided with Linux versions of the Surface Convective Auto Nowcaster (SCAN) and the Flash Flood Monitoring and Prediction (FFMP) software. The WDTB has provided FSL with additional funds to help expedite this SCAN and FFMP conversion. Delivery: Six months after SCAN and FFMP are converted to Linux and made available to WDTB.

4. Open WES (Requirement: III.A.2.2)

The cost to install the two needed INFORMIX licenses on each new WES has increased 25-fold from $400 to $10,000. To mitigate the cost impact, WDTB will develop an "open" version of WES that does not require INFORMIX. "Open WES" will have the same capabilities as WES except WARNGEN will not be available. Following the shuttle Columbia accident, WDTB provided a prototype of Open WES to the NASA investigation team to assist with their analysis of WSR-88D data. They are also investigating the possibility of retaining the WARNGEN functionality in "Open WES" using no-cost alternatives to INFORMIX. Delivery: 4th Quarter FY03.

5. WES Scripting Language (Requirement: III.A.2.1)

WDTB will be developing a WES scripting language which will allow WES simulations to more accurately model the total forecast environment by integrating non-AWIPS data sources into the WES simulation. Some examples that have been tested with prototypes in Winter Weather and DLOC workshops include:

- Spotter Reports (some are accurate...some may be bogus).
- Distracters - having to respond to action not involving the simulation (e.g., a media call for temperatures).
- Mentors - the "SOO" may point out an important feature (again...it may be bogus).
- Evaluation - e.g., assess situational awareness by asking questions such as "What is the biggest threat?"

WDTB is targeting the integration of this new WES capability as a separate module and in support of the Winter Weather Simulation Guide release. Delivery: August FY03.

6. WES Build 2 (Requirement: III.A.2)

Six months after development of a Linux version of the FFMP processor and SCAN processor, WDTB will develop and deliver version WES 2.0 that will support using FFMP and SCAN in simulations. Because there is no formal plan within the AWIPS program to port these processors over to Linux, WDTB has funded an FSL pilot study to attempt to port the FFMP processor (and SCAN processor, time permitting) to Linux. If the FSL project is successful, the earliest WDTB could release WES 2.0 would be in the 4th quarter of FY03. Pending the resource load of WES 2.0, WDTB will also provide updates to the simulator to address AWIPS build upgrades and any new warning functionality in the coming AWIPS builds. Delivery: Six months after the development of a Linux version of the FFMP processor and SCAN processor.

SOO Science and Training Resource Coordinator (STRC)

Introduction

The COMET/NWS Training Division Case Study Library will serve as an on-line repository for operational data and support documentation for use in training at the WFOs and RFCs. Its purpose is to provide a means of exchanging materials for use with local training efforts utilizing WES, D2D

and D3D. Trainers will be able to select from a collection of peer-reviewed case modules identified by their educational objectives and organized to allow for easy identification so that offices can best meet their particular training needs. The Library will provide resources for training in a variety of areas, including:

- Warning decision-making
- Forecasting techniques
- The use of operational forecasting tools
- The use of operational data types
- Application of scientific principles
- Experience with specific weather phenomena
- Data for case study research projects

Offices will be encouraged to submit training materials to meet the above objectives. A peer-review process utilizing NWS SOO expertise will be instituted to ensure that the modules maintain a high level of quality in terms of scientific content and applicability to operational forecasting. Acknowledgment of individuals will be given in the case modules included in the library.

Case Modules

A case module will consist of data and supporting materials that have undergone a review process before being accepted in the library. All data will be distributed to the offices on DVD in a format compatible with WES, D2D and D3D. The supporting materials will include a case study or simulation guide and any additional information which helps support the trainer. The simulation and case study guides will have a specified format that clearly identifies the training objectives of each module, with suggested training methods and/or procedure(s). It is the responsibility of the individual(s) submitting the module to provide all the training material for inclusion in the library.

Case Module Submission

The Library Web site will include a section where a case module can be submitted for review. The site will request basic information regarding the case including contributor name(s), office(s), contact information, case summary, and primary training objectives. After receiving the submission, the STRC will contact the office with follow-up questions or to request the data and supporting materials. Data and supporting information for the module may be sent via FTP, or through mail on DVDs or CDs. Once accepted for inclusion to the library, the contributor names and field offices will be blazoned on all materials related to that module and a letter of appreciation will be sent.

Review Process

All modules submitted to the Library will undergo a review process before being officially released. This process will be similar to that used for submission of papers for refereed journal articles, albeit in a much less rigorous format. The review process will be conducted by two SOOs, selected by the STRC, who will work together to insure the integrity of the data and supporting materials. It will be the reviewers' responsibility to inspect the case submission for accuracy in scientific content, forecasting methodology, and data consistency. Any problems or questions raised by the reviewers will be brought to the attention of the STRC who will ask the contributors to address those issues. The primary goal of the review process is to ensure that each module meets the objectives stated by the submitting group or individual.

Case Module Requests

Following a successful review, case modules will be made available on the library for selection. Each module will be organized according to type of event and the training objectives addressed. Modules listed on the site will be accompanied by a summary, list of authors, list of data included, and reviews from other users. It is imperative that the request site be organized and developed to allow for the most efficient means of selecting the appropriate module for training. A method of sorting the available cases based on search criteria will also be explored. Trainers will be allowed to peruse the site and select those modules of interest. When the selection process is completed, the trainer will electronically submit a request to the STRC and a student support person. All materials will be sent directly to the requesting individual as soon as possible given the volume of requests and the resources available.

The STRC will contact the trainer if there are any problems or questions. Following the request of a case, the trainer will receive an occasional email message requesting comments regarding their experience with the module. The individual will be asked whether the stated training objectives were met, to provide a grade from one to five for the module, and to give any additional comments. Once a trainer submits a review, no more requests will be sent. All comments and grades will be posted anonymously to the library.

SR Scientific Services Division

The WES developers are also working to include the Product Maker functionality in the WES.

A summary of all available WES cases, as of December 2002, was included as a technical attachment to that month's *Southern Topics*. The TA is available at *http://www.srh.noaa.gov/ftproot/topics/attach/pdf/ssd02-36.pdf*.

Unless notified otherwise, all WES case submitted to the Southern Region Library in partial fulfillment of the goals specified in the annual Southern Region Operating Plan will automatically be submitted to the COMET/NWS Training Division Case Study Library.